Message

From: Brasaemle, Karla [Karla.Brasaemle@TechLawInc.com]
Sent: 5/4/2017 5:42:38 PM
To: Davis, Eva [Davis.Eva@epa.gov]; Cosler, Doug [Doug.Cosler@TechLawInc.com]; 'Dan Pope' [DPope@css-inc.com]; d'Almeida, Carolyn K. [dAlmeida.Carolyn@epa.gov]; Henning, Loren [Henning.Loren@epa.gov]; Wayne Miller (Miller.Wayne@azdeq.gov) [Miller.Wayne@azdeq.gov]; Eleanor Jennings [ejennings@teci.pro]; steve@uxopro.com; Fairbanks, Brianna [Fairbanks.Brianna@epa.gov]
Subject: RE: Implementation of EBR at former WAFB

Is there an email from Loren that specifically discusses 30 areas?

Not advisable to kill the bugs in as many areas if they are relying on repopulation from adjacent areas....

Karla Brasaemle, P.G.,
TechLaw, Inc.
415-762-0566

From: Davis, Eva [mailto:Davis.Eva@epa.gov]
Sent: Thursday, May 4, 2017 10:38 AM
To: Cosler, Doug <Doug.Cosler@TechLawInc.com>; 'Dan Pope' <DPope@css-inc.com>; d'Almeida, Carolyn K. <dAlmeida.Carolyn@epa.gov>; Henning, Loren <Henning.Loren@epa.gov>; Brasaemle, Karla <Karla.Brasaemle@TechLawInc.com>; Wayne Miller (Miller.Wayne@azdeq.gov) <Miller.Wayne@azdeq.gov>; Eleanor Jennings <ejennings@teci.pro>; steve@uxopro.com; Fairbanks, Brianna <Fairbanks.Brianna@epa.gov>
Subject: RE: Implementation of EBR at former WAFB

Carolyn and I noticed during development of the proposed plan t0 the ROD and through the Work Plan that the thing kept evolving. What they have been telling us about EBR keeps evolving as well, and they have contradicted themselves many times. It's there way of keeping us off balance and deflecting our criticism. No doubt we are in for more of that. The latest little missive from them that Loren forwarded states that they will start the EBR in 30 areas. Well, their famous Decision Tree states that the first step of EBR implementation is to pump the well to see how much LNAPL is recovered. They only installed pumps in 11 wells – so how can they start in 30 areas?

From: Cosler, Doug [mailto:Doug.Cosler@TechLawInc.com]
Sent: Wednesday, May 03, 2017 5:27 PM
To: 'Dan Pope' <DPope@css-inc.com>; Davis, Eva <Davis.Eva@epa.gov>; d'Almeida, Carolyn K. <dAlmeida.Carolyn@epa.gov>; Henning, Loren <Henning.Loren@epa.gov>; Brasaemle, Karla <Karla.Brasaemle@TechLawInc.com>; Wayne Miller (Miller.Wayne@azdeq.gov) <Miller.Wayne@azdeq.gov>; Eleanor Jennings <ejennings@teci.pro>; steve@uxopro.com; Fairbanks, Brianna <Fairbanks.Brianna@epa.gov>
Subject: RE: Implementation of EBR at former WAFB

I agree completely with your and Eva's comments, Dan. And, in my view, that's what our EBR modeling (Bo's and my simplified version of his modeling) clearly shows (e.g., think >100 yrs for TOR's).

From: Dan Pope [mailto:DPope@css-inc.com]
Sent: Wednesday, May 03, 2017 6:03 PM
To: Davis, Eva <Davis.Eva@epa.gov>; d'Almeida, Carolyn K. <dAlmeida.Carolyn@epa.gov>; Henning, Loren <Henning.Loren@epa.gov>; Brasaemle, Karla <Karla.Brasaemle@TechLawInc.com>; Wayne Miller (Miller.Wayne@azdeq.gov) <Miller.Wayne@azdeq.gov>; Eleanor Jennings <ejennings@teci.pro>; steve@uxopro.com; Cosler, Doug <Doug.Cosler@TechLawInc.com>; Fairbanks, Brianna <Fairbanks.Brianna@epa.gov>
Subject: RE: Implementation of EBR at former WAFB

And, of course, these are all technical challenges for doing EBR (i.e., not just for monitoring EBR), which we have pointed out to them numerous times. They're just rephrasing our concerns about doing EBR, and applying them to monitoring EBR.

Anyway, the problems they listed (*location and quantity of LNAPL present, location and distribution of sulfate relative to LNAPL locations, flux of groundwater and LNAPL, migration of LNAPL from adjacent areas, diffusion from lower-permeability lenses, etc.*) are what makes EBR so uncertain in terms of timeframe for remediation.

If we can't track the depletion of COCs from the LNAPL (i.e., the LNAPL as a source/reservoir of COCs, serving as a continuing source of COCs to groundwater) , then basically we're stuck with being able to monitor a relatively small part of the site COCs (groundwater dissolved COCs), and hoping that the source LNAPL COCs are being depleted.

Should we take Loren off this series of emails, while we whine and complain a bit?

From: Davis, Eva [mailto:Davis.Eva@epa.gov]
Sent: Wednesday, May 03, 2017 4:50 PM
To: Dan Pope; d'Almeida, Carolyn K.; Henning, Loren; Brasaemle, Karla; Wayne Miller (Miller.Wayne@azdeq.gov); Eleanor Jennings; steve@uxopro.com; Cosler, Doug; Fairbanks, Brianna
Subject: RE: Implementation of EBR at former WAFB

In other words, they have no idea what the timeframe is due to all the LNAPL out there, and they still won't know 20 years from now.

From: Dan Pope [mailto:DPope@css-inc.com]
Sent: Wednesday, May 03, 2017 1:06 PM
To: d'Almeida, Carolyn K. <dAlmeida.Carolyn@epa.gov>; Henning, Loren <Henning.Loren@epa.gov>; Davis, Eva <Davis.Eva@epa.gov>; Brasaemle, Karla <KBrasaemle@TechLawinc.com>; Wayne Miller (Miller.Wayne@azdeq.gov) <Miller.Wayne@azdeq.gov>; Eleanor Jennings <ejennings@teci.pro>; steve@uxopro.com; Cosler, Doug <DCosler@TechLawinc.com>; Fairbanks, Brianna <Fairbanks.Brianna@epa.gov>
Subject: RE: Implementation of EBR at former WAFB

I can be available tomorrow.

I have to admit I may have laughed a bit at this excerpt from the AF Response Table:

> *Verifying degradation of LNAPL in high LNAPL areas would likely not be conclusive in predicting timeframes for remediation in LNAPL areas. There are technical challenges associated with this type of evaluation including the location and quantity of LNAPL present, location and distribution of sulfate relative to LNAPL locations, flux of groundwater and LNAPL, migration of LNAPL from adjacent areas, diffusion from lower-permeability lenses, etc.*

From: d'Almeida, Carolyn K. [mailto:dAlmeida.Carolyn@epa.gov]
Sent: Wednesday, May 03, 2017 12:46 PM
To: Henning, Loren; Davis, Eva; Dan Pope; Brasaemle, Karla; Wayne Miller (Miller.Wayne@azdeq.gov); Eleanor Jennings; steve@uxopro.com; Cosler, Doug; Fairbanks, Brianna
Subject: RE: Implementation of EBR at former WAFB

AF knows that once the full implementation is in place the ROD gives them 20 years to demonstrate the remedy is working or not, and this debate can be dragged out until at least 2033 before remedy failure can be declared. I am sure this is what they discussed when they reviewed our proposal. Should we have a team call to discuss? I'm available tomorrow between 1 -3

Carolyn d'Almeida
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"Because a waste is a terrible thing to mind..."

From: Henning, Loren
Sent: Tuesday, May 2, 2017 12:16 PM
To: Davis, Eva <Davis.Eva@epa.gov>; d'Almeida, Carolyn K. <dAlmeida.Carolyn@epa.gov>; Dan Pope <DPope@css-inc.com>; Brasaemle, Karla <KBrasaemle@TechLawInc.com>; Wayne Miller (Miller.Wayne@azdeq.gov) <Miller.Wayne@azdeq.gov>; Eleanor Jennings <ejennings@teci.pro>; steve@uxopro.com; Cosler, Doug <DCosler@TechLawInc.com>; Fairbanks, Brianna <Fairbanks.Brianna@epa.gov>
Subject: RE: Implementation of EBR at former WAFB

Team,

Below is the email I sent to Phil Mook as an overview of what a phased implementation of EBR would look like to the regulators, and I asked him to take it to his team/management for discussion and consideration. I just received a voice-mail message that the AF is declining to implement EBR in a phased approach and that they want to go full implementation. I'm expecting a written response from him probably today. We'll need to talk to management about this, and we also need to begin preparing for going to formal dispute. For now, just hold on until I have more information.

Loren

Loren Henning, Chief
Federal Facilities and AZ Private Sites Section
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(415) 699-1941 cell

From: Davis, Eva
Sent: Tuesday, May 02, 2017 9:57 AM
To: Henning, Loren <Henning.Loren@epa.gov>; d'Almeida, Carolyn K. <dAlmeida.Carolyn@epa.gov>
Subject: RE: Implementation of EBR at former WAFB

Let me warn you (now that you have already sent the email) that I expect them to push back strongly on going back to the May 2014 implementation plan. But I pushed for it – and will continue to push for it – because it provides the containment that the site needs, and it in general follows what is recommended in the literature for implementation of EBR. Overall, I believe it has a much better chance of being successful than what they proposed in Addendum #2. The implementation plan in Addendum #2 I believe would overall be harmful – but even if the May 2014 implementation plan is not successful (as I expect it will not be) at least it will not cause harm.

Don's meeting invite is for a one hour call on May 11, which I do not expect to be near enough time to work out the details –

I'm sure the team would like to know before the May 11 call what Phil's initial response was.

Thanks Eva

From: Henning, Loren
Sent: Tuesday, May 02, 2017 11:44 AM
To: Davis, Eva <Davis.Eva@epa.gov>; d'Almeida, Carolyn K. <dAlmeida.Carolyn@epa.gov>
Subject: RE: Implementation of EBR at former WAFB

Yes, that's fine. I've asked Phil to call me and talk before sending a response. My goal is to get them on board with the idea and work out the details at the next BCT meeting. I'm happy to have a conference call with the team to discuss next steps if folks would like that.

Loren

From: Davis, Eva
Sent: Tuesday, May 02, 2017 7:07 AM
To: Henning, Loren <Henning.Loren@epa.gov>; d'Almeida, Carolyn K. <dAlmeida.Carolyn@epa.gov>
Subject: RE: Implementation of EBR at former WAFB

Thanks Loren. Should we forward this to the rest of the team so they know where we are starting from when we next talk to the Air Force?

From: Henning, Loren
Sent: Monday, May 01, 2017 2:36 PM
To: d'Almeida, Carolyn K. <dAlmeida.Carolyn@epa.gov>; Davis, Eva <Davis.Eva@epa.gov>
Subject: FW: Implementation of EBR at former WAFB

This is what I sent to Phil. Angeles reviewed the earlier version and thought it was too long and had too much detail, so I shortened it to the essentials. I've only received a note from Phil that he received this email and that they are working on a response.

Loren

From: Henning, Loren
Sent: Monday, April 24, 2017 5:07 PM
To: philip.mook@us.af.mil
Cc: Herrera, Angeles <Herrera.Angeles@epa.gov>; 'Tina LePage' <LePage.Tina@azdeq.gov>
Subject: Implementation of EBR at former WAFB

Hi Phil,

As we discussed, here is a fairly general overview of the phased implementation of EBR requested by the Regulatory Agencies. The Agencies understand the AF's desire to move forward with implementation of EBR; however, our technical staff still have significant concerns about how EBR will be implemented and evaluated as a viable treatment technology. Therefore, the Agencies request that EBR be implemented in a phased approach, using a re-circulation approach similar to that outlined in the approved May 2014 RD/RA work plan. It is necessary to use a recirculation approach because that approach was used in the modeling to predict the

remedial time frame. The phased implementation must allow the Agencies to verify that benzene (including benzene in the LNAPL phase) is being degraded/depleted, to verify effective TEA distribution throughout the treatment area, and to determine the optimal conditions for EBR.

For this phased approach, the AF, with input provided by the Agencies, would select two locations at the site in each of the hydrogeologic zones to implement EBR initially; one location would be in an area of high LNAPL concentration, and another area with dissolved phase contaminants only. We propose that the primary measure of effectiveness of EBR would be reduction of benzene concentrations in LNAPL and groundwater, after allowing for the potential increase in dissolved phase concentrations immediately after the TEA is injected. Other lines of evidence to demonstrate that EBR is working as expected would include geochemical and microbiological analyses to determine the response of site geochemistry and the microbiota (particularly those microorganism groups known to be involved in degradation of benzene under sulfate-reducing conditions) to sulfate injection. This empirical data collected before and during implementation of EBR would be used to evaluate its efficacy, would be the basis for optimizing the system as appropriate, and would provide data on benzene degradation rates to be incorporated into appropriate models to predict the time to remediation.

Please share this with your technical staff, and let's plan to discuss in more detail during the next WAFB conference call.

Regards,

Loren

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